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China, Peoples Republic of

FAIRS Subject Report

Oilseed Standards

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Report Highlights:
On July 3, 2008, China notified the WTO of the National Standard GB-1532-2006 "National Standard for Soybeans" as TBT/N/CHN/402. This standard specifies the relevant terms and definitions, classifications, quality requirements, test methods, and requirements for labeling, packaging, transportation and storage of soybeans. GB/T 5512 Inspection of Grain and Oilseeds - Methods for Determination of Crude Fat is referenced in that standard and published here as a reference in reviewing TBT/N/CHN/402. This report is an UNOFFICIAL translation of GB/T 5512.

Includes PSD Changes: No
Includes Trade Matrix: No
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Executive Summary: On July 3, 2008, China notified the WTO of the National Standard GB-1532-2006 "National Standard for Soybeans" (Replacing GB 1352-1986) as TBT/N/CHN/402. This standard specifies the relevant terms and definitions, classifications, quality requirements, test methods, and requirements for labeling, packaging, transportation and storage of soybeans. This standard also applies to testing, evaluation and identification of the quality of commercial soybeans. The date for submission of final comments to the WTO is September 3, 2008. The proposed date of adoption is 90 days after circulation by the WTO Secretariat (October 3, 2008) and the proposed date of entry into force is 6 months after adoption (January 3, 2009). This is notified as GAIN Report CH8066.

One of the measures that is referenced in the proposed National Standard is GB/T 5512 Inspection of Grain and Oilseeds - Methods for Determination of Crude Fat. This standard has not been notified to the WTO. This National Standard, along with other standards published in GAIN Reports CH8097-CH8105, is being published so that GB-1532-2006 "National Standard for Soybeans" TBT/N/CHN/402 can be reviewed with this additional pertinent information.

Thanks go to the United States Soybean Export Council – International Marketing and the U.S. Grains Council for their support in translating this measure.

BEGIN TRANSLATION

National Standard of the People's Republic of China

GB 5512-85

Inspection of Grain and Oilseeds - Methods for Determination of Crude Fat

Issued on Nov. 2, 1985 Implemented on July 1, 1986

Approved by the Standardization Administration of P.R.C.

This standard is applicable to determination of the crude fat content of commodity grain and oilseeds.

1 Soxhlet Extractor Method

1.1 Instruments and Apparatus

1.1.1 Analytical balance: sensitivity 0.0001g;

1.1.2 Electric thermostat;

1.1.3 Electric thermostatic water bath;

1.1.4 Disintegrator, mortar;

1.1.5 Desiccator with allochroic silica gel

1.1.6 Filter paper cylinder

1.1.7 A set of Soxhlet Extractor (all parts must be cleaned and dried at the temperature of 105? , and the extraction flask must be dried to constant weight);

1.1.8 Jar, absorbent string, absorbent cotton, absorbent bank sand

1.2 Reagent - Absolute ether (A.R)

1.3 Sample Preparation

1.3.1 Take 30~50g cleaned and impurity-free test sample from cereal and bean (except peanut) respectively, grind them all and then put them into the jar for standby by screening with a round hole sieve with a diameter of 1.0mm.

1.3.2 Take 20g cleaned and impurity-free test sample from the small-sized oilseeds such as sesame, rapeseeds and linseeds respectively and then put them into the jar for standby.

1.3.3 Take 30~50g cleaned and impurity-free sample from the large-sized oilseeds such as peanut in shell, castor bean, sunflower seeds and tea-seeds, after the impurity is removed, decorticate them one by one and weigh the kernel and hull respectively and then calculate the percentage of the total amount of kernel. Finally, cut the kernel into pieces and put them into the jar for standby.

1.4 Operation Methods

1.4.1 Test sample binding up: weigh up 2~5g test sample from the standby sample prepared with a bake box and dry them at a temperature of 105? for 30 min. Put them into the mortar while they are hot and add in about 2g absorbent bank sand and grind them together. After they have turned into oily matter, put them into the filter paper cylinder cleanly (put a layer of absorbent cotton into the bottom of the cylinder and dry the cylinder at the temperature of 105? for 30 minutes). Dip a little ether with absorbent cotton to wipe away the test sample and fat remaining in the mortar and put them into the filter paper cylinder. Finally, stuff the upper part of the filter paper cylinder with absorbent cotton to hold down the test sample.

1.4.2 Extraction and drying: install the extractor properly and put the filter paper cylinder with test sample into the extractor cylinder. At the same time inject the ether above the height of the siphon pipe and inject the ether again to 2/3 height of the siphon pipe after the ether drained. Cram a small piece of absorbent cotton into the back cut of the condensate tube gently; open the water inlet pipe of the condensate tube for heating and extraction. The heating temperature shall be based on the reflux of the ether to be 120~150 drops/min and 7 times reflux/h. The time for extraction shall depend on the oil content in test sample, generally more than 8 hours and extract till there is no oil trace in ether in extraction tube at all when checked by the sheet glass (spot test).

After all fats are extracted, take the filter paper cylinder out by long-arm forceps and reheat the ether to make it reflow twice. Then take the ether back. Take down the condensate tube and the extract cylinder and then deplete the ether remained in the extract flask by heating. Clean the outside of the extract flask by absorbent cotton dipping with ether, then dry the extract flask at the temperature of 105? for 90 min firstly, then for 20min till it was dried to constant weight (if the weight difference between the former and the latter is within 0.0002g, it will be regarded as constant weight). The increased weight of the extract flask is the weight of the crude fat.

1.5 Calculation of Results

The content of crude fat under wet basis, dry basis and at the standard aquatic impurity rate shall be calculated as formula (1), (2) and (3):

$$\text{Crude fat (.in wet basis)} = \frac{W_1}{W}\times 100 \quad \text{----------(1)}$$

$$\text{Crude fat (.in dry basis)} = \frac{W_1}{W(100-M)}\times 10000 \quad \text{---------- (2)}$$

$$\text{Crude fat (.at the standard aquatic impurity rate)} = \frac{W_1(100-M_{std})}{W(100-M)}\times 100 \quad \text{----(3)}$$

Where: W_1—the weight of crude fat, g;

W—the weight of test sample, g;

M—the percentage of moisture content in test sample, %;

M_{std}—the sum of standard test samples moisture content and the standard impurity, %.

The allowable deviation between dual test results shall be no more than 0.4% for grain and oilseeds and no more than 0.2% for soybean. Figure out the average number of the dual test results which will be the measured result. Take the first digit after the decimal point for the measured result.

If the crude fat of the unhulled oilseeds is determined, then it must be converted by formula (4) and (5):

$$\text{Crude fat of the unhulled oilseeds (.in wet basis)} = \frac{N\times A}{100} \quad \text{---------- (4)}$$

$$\text{Crude fat of the unhulled oilseeds (.in dry basis)} = \frac{N\times A}{100-M} \quad \text{---------- (5)}$$

Where:

N—the percentage of the crude fat of the unhulled oilseeds' kernel in wet basis, %;

A—the percentage of the total kernel amount of the unhulled oilseeds, %;

M—the percentage of moisture content in unhulled oilseeds, %.

Note: if no filter paper cylinder is available, take the filter paper with a length of 28cm and a width of 17cm and roll the paper into a shape of cylinder with a test tube with a diameter of 2cm along the long edge of the paper. Draw the cuvette out of the paper cylinder to half height, flatten the evacuated part of the paper cylinder, and fold it to make it tightly closed to the external layer of the cuvette. Tie the paper cylinder with absorbent string, fold the lower angle upwards and press it into a round bottom. Then a filtration paper cylinder is formed with a diameter of 2.0cm and a height of 7.5cm after taking the cuvette out.

2. Drip Extraction Method

2.1 Instruments and Apparatus

2.1.1 Drip extractor;

2.1.2 Other instruments and apparatus are the same with those in 1.1.

2.2 Reagent

All reagents are same with those in 1.2.

2.3 Sample Preparation

Method of sample preparation is same with 1.3.

2.4 Operation Method

The instruments treatment is the same with that described in 1.4. Put the sample package into the extract pipe and extract the fat by ether. Take the sample package out after all fat has been extracted and then close the glass piston for reflowing. The ether can be taken back by continuous heating. The other methods are the same as those in 1.4.

Note: the refabrication of the recycled ether can be divided into 3 steps:

? Remove the peroxide: inject the ether into the separating funnel and add in 10% ferrous sulfate solution accounting for 1/5 of the amount of ether (take 100g ferrous sulfate and dissolve it in 600ml water and add in 30ml concentrated sulfuric acid for acidification, then dilute the solution to 1000ml by water) to sufficiently mix. Discharge the solution after standing for clarification

? Remove the ethanol: add in 10% potassium hydroxide solution accounting for 1/5 of the amount of the ether, and stand after oscillation and washing. Then discharge the solution, only 2~3 times rewashing is necessary.

? Remove the moisture and distillation: put appropriate amount (1/10~1/5 of the amount of ether) of granule anhydrous calcium chloride into the ether flask and place it for 24 hours, rock the flask from time to time. Take clear solution from the upper layer for distillation and collect the cut fraction in the temperature range of 33 ? to 37? . The ether adopter shall be cooled by ice or cold water, and connect the adopter with a safety flask simultaneously and exhaust the gas in the flask out of room or into the sewer.

Additional Explanation

This national standard was proposed by the Ministry of Commerce of the P.R.C.

This standard was drafted by the Grain Storage and Transport Bureau, the Ministry of Commerce, P.R.C.

Major draftsmen of this standard are Gao Xiuwu, Yang Haoran, Wu Yanxia and Lu Guifen.